

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-015238**Date Inspected:** 29-Jun-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1100**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1930**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

A). Field Splice W1/W2

B). Field Splice W2/W3

C). Field Splice E3/E4

A). Field Splice W1/W2

The QAI observed the welder, James Zhen ID-6001 perform the back grinding on the Complete Joint Penetration (CJP) groove weld identified as WN: 1W-2W-B. At the conclusion of the back grinding the QC technician Tom Pasqualone performed a Magnetic Particle Test (MPT) of the "B" face of the weld joint and no rejectable indications were noted. The application and evaluation of the MPT appeared to comply with the MPT procedure identified as SE-MT-CT-D1.5-101 Rev. 4. At the conclusion of the MPT, Mr. Zhen commence the CJP welding utilizing the Flux Cored Arc Welding (FCAW-G) process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-3110 Rev. . The WPS was also used by the QC inspector, Mr. Pasqualone, as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters and were noted as follows; 242 amps, 21.2 volts and a travel speed measured at 176mm/minute. The QAI also observed, at random intervals, the QC inspector verifying the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding was performed in the vertical position (3G) with the work positioned approximately in the vertical plane and the groove approximately vertical and the weld

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progression up.

### B). Field Splice W2/W3

The QAI observed the Ultrasonic Testing (UT) of the repairs on the side plate field splice identified as WN: 2W-3W-C1 and C2. The testing was performed by the QC technician Tom Pasqualone utilizing a G.E. /Krautkramer USM 35X. Mr. Pasqualone also utilized the UT Procedure identified as SE-UT-D1.5-CT-100 Rev.4 during the examination of the CJP. The QC technician performed the required longitudinal wave utilizing a 1" diameter transducer for base metal soundness and a .63 x .75 rectangular transducer to perform the shear wave testing during the testing for weld soundness. At the conclusion of the testing on the repaired areas, the QAI observed that the no rejectable flaws were indicated by the QC technician. See QA Observation and Verification Summary regarding QAI UT verification.

### C). Field Splice W3/W4

The QAI observed the initial Flux Cored Arc Welding (FCAW-G) of the weld joint identified as Weld Number (WN) 3W-4W-C. The welding was performed by the welder /operator Rory Hogan ID-3186 utilizing the WPS ABF-WPS-D15-3042A Rev. 1. The WPS was also used by the QC inspector James Cunningham as a reference when monitoring the welding and verifying the welding parameters which were observed as follows: 242A amps, 24.2 volts and a travel speed measured as 192mm. The QC inspector also verified the minimum preheat temperature of 100 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The welding was performed in the overhead position (4G) with the work at approximate incline of 22 degrees. The CJP welding of the "B" face of the joint was not completed during this shift.

The QAI also observed the Magnetic Particle Testing (MPT) of the CJP side plate field splice identified as WN: 3W-4W-E. The testing was performed by the QC technician Steve McConnell utilizing a Parker Contour Probe and the AC mode as per the procedure identified as SE-MT-D1.5-CT-100 Rev.4. The QC technician performed the testing utilizing longitudinal and transverse axis. At the conclusion of the testing the QAI observed that the no rejectable indications were noted by the QC technician. See QA Observation and Verification Summary regarding QAI MPT verification.

### QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the FCAW-G process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The QAI performed a Ultrasonic Test (UT) on the repairs of the transverse weld identified as WN: 2W-3W-C1

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and C2 and WN: 4W-5W-A. The selected repaired areas were tested 100% to verify that the welds and testing by QC meet the requirements of the contract documents. The examination was performed as per the contract documents and a ultrasonic test report, TL-6027 was generated on this date.

The QAI also performed a Magnetic Particle Test (MPT) on the side plate field splice CJP weld identified as WN: 3W-4W-E. The weld was tested 10% to verify the weld and testing by QC meet the requirements of the contract documents. The examination was performed as per the contract documents and a magnetic particle test report, TL-6028 was generated on this date.

The digital photographs below illustrate the work observed during this scheduled shift.



### Summary of Conversations:

There were no pertinent conversations were discussed in regards to the project.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Reyes,Danny	Quality Assurance Inspector
<b>Reviewed By:</b>	Levell,Bill	QA Reviewer

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